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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/522,149

09/29/2005

Ranjit Malik

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EXAMINER

MCCLENDON, SANZA L

ART UNIT

PAPER NUMBER

1796

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/522,149	<b>Applicant(s)</b> MALIK ET AL.	
	<b>Examiner</b> Sanza L. McClendon	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/05 and 5/07</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-5, 7-8, and 12-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Bennett et al (6,254,954).

Bennett et al sets forth PSA's obtained from a composition comprising i) 30-80% of a polyester, preferably amorphous and having a softening point between 50 and 150 0C most preferably from 60 to 110 0C, ii) from 20-70% of an epoxy component that is preferably a mixture of a liquid epoxide compound and a solid epoxy compound, iii) 0 to 50% of a hydroxyl-containing compound and iv) an effective amount of a photoinitiator--see abstract; column 3, lines 38-40; column 4, lines 55-65; and column 5, lines 13-15. Said useable epoxide compounds includes diglycidic ethers of bisphenol A--see column

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5, lines 29-30 and 19-28. The photoinitiator may be selected from the group of metallocene salts, and aromatic onium salts--see column 6, lines 10-13 and column 7, lines 40-57. These are considered latent photoinitiators, thus claim 5 is anticipated. Said photoinitiator is preferably found in amounts from 0.01 to 5% by weight--see column 10, lines 52-57. Bennett et al sets forth that additives such as those found in column 10, lines 60-65, wherein silica and reinforcing agents can be found. It is deemed that silica is a known desiccant material, thus claim 7 is anticipated. The reinforcing materials anticipate claim 8. Said additives can be found in amounts from 0 to 50% with respect to the total weight of compounds (i) to (iv). Bennett et al teaches said PSA are curable by exposure to actinic radiation such as UV, visible light and electron beam--see columns 12 and 13. The PSA's are useable for bonding applications in the automotive, construction and electronic industries, such as bonding integrated circuit chips. This broad teaching is deemed to anticipate claims 12-28 since these articles are known in the electronic industry. Additionally, Bennett et al teaches said adhesives are useful in bonding substrates such as glass, plastics, metals, ceramics and materials derived from these.

3. Claims 1-5 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishizawa et al (6,641,912 & 2003/0040550). Note all column and line usage taken from 2003/0040550).

4. Ishizawa et al describes a PSA comprising a composition comprising a polyester resin, a cationically curable compound, and a cationic photoinitiator--see abstract and pages 2-3. In addition said PSA composition can comprise a tackifier resin--see [0032] and [0033]. The polyester resins as found in the examples have softening points above 60 °C, i.e. UE3500 polyester resin has a softening point of 293 °F and UE3400 polyester resin has a softening point of 221 °F--see data sheets attached to PTO-892. The cationically polymerizable compound is an epoxy resin, such as diglycidyl ethers of bisphenol A or F--see [0026]. The epoxy resin in the examples is a liquid thus has a softening point below 30 °C. The photoinitiator can be an onium salt--see [0028], which is a latent photoinitiator. Said PSA's are curable by exposure to active energy radiation, such as UV, visible light, and the like--see [0031]. The PSA is useful for bonding two substrates together--see [0066].

***Claim Rejections - 35 USC § 102/ 35 USC § 103***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5, 7-9, and 11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Perez et al (6,235,850).

Perez et al teaches epoxy/acrylic terpolymers self-fixtured adhesives. Said terpolymer is an acrylic terpolymer having epoxy functional groups attached--see abstract, column 2, and lines 40-48, and column 5, lines 11-33. Said terpolymer can be blended with an epoxy resin--see column 5, lines 27-28. The epoxy resins are described in columns 5-6, wherein diglycidyl ethers of bisphenols can be found--see lines 46-60 of column 5. A cationic latent photoinitiator can be added to said blend. These include onium salts and organometallic salts--see column 6, lines 31-65 to column 9, lines 54. Other ingredients or adjuvants can be added up to 50% by weight of the composition. these include monomeric or multifunctional acrylates (wherein said multi-functional acrylates can be considered crosslinking agents), reactive diluents, plasticizers and oils, fillers (such as silica and clay among others), tougheners, thermoplastic and tackifying resin, solvents, stabilizers, pigments, and others found in column 12, lines 25-38. Said

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adhesive are curable by exposure to active energy radiation to become structural adhesives, such as UV and visible light--see column 12, lines 10-20. Perez et al does not expressly teach the softening point of the terpolymer and since the Patent and Trademark Office is not equipped to conduct experimentation in order to determine whether Applicant's composition differs and, if so, to what extent, from the discussed reference. Therefore, with the showing of the reference, the burden of establishing non-obviousness by objective evidence is shifted to the Applicants.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 6-7 and 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett et al (as found above) in view of Sullivan et al (2004/0225025)

10. Bennett et al does not teach using nanoclays in amounts from 1 to 20% by weight. However, nanoclays are known additives to adhesive and sealants useful in bond or encapsulating electronic devices, such as LCD's and OLED's as taught by Sullivan et al. Sullivan et al teaches adhesive/sealants for use in LCD's and OLED's. Said adhesive/sealants comprise epoxy resins, polyol compound, cationic latent photoinitiators, and other components, such as silica and nanoclays. Sullivan et al sets forth that the addition of nanoclays and silica in amounts from 0.1 to 10% by weight improve the barrier properties of the adhesive by further reducing the water vapor transmission and/or permeance of the cured adhesive. Thus the examiner deems that it would have been obvious to a skilled artisan to use nanoclays and silica to the composition of Bennett et al as suggested by Sullivan et al. The motivation

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would have been a reasonable expectation of success of achieving improved barrier properties as suggested by Sullivan et al in the absence of evidence to the contrary and/or unexpected results.

Bennett et al does not expressly teach using a crosslinking agent however the examiner deems that those compounds found in claim 10 are known crosslinking agents for epoxy compounds and that it is within the skill level of an ordinarily skilled artisan to use these crosslinking agents to tailor the final properties of the composition and/or increase the speed of cure (more reactive sites the faster the curing). Thus claim 10 is deemed obvious in absence of evidence to the contrary and/or unexpected results.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,350,791 to Feichtmeier et al teaches thermosettable adhesive comprising a partly polymerizable mixture of an acrylic resin and a co-monomer, an epoxy resin, optionally other thermoformable polymers, a heat activatable curing system for the epoxide resin, a photoinitiator, and one or more hydroxides of Al, Mg and/or Zn. The primary difference is no softening point mentioned for the pre-polymerized acrylic copolymer. 7,084,197 to Chin et al teaches the synergist effect of a nano-scaled filler such as a clay with a hindered amine light stabilizer in polymeric compositions. The primary difference is Chin et al does not teach adhesives. US 5,674,623 to Haddon et al sets forth photocurable adhesive films comprising a mixture of an urethane acrylate or polyester acrylate with a solid polyvinylacetal with a photoinitiator. US 5,721,289 to Karim et al teaches an adhesive composition comprising at least one free radical polymer form in-situ, a cationic polymerizable resin, such as an epoxide resin, and a photocatalyst system for the epoxide resin, optionally with a polyhydric polyol. The primary difference is not mention of softening points.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sanza L McClendon/

Primary Examiner

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